Stupochenko, Ye. V

82139
S/058/60/000/02/14/023

24.5300

Translation from: Referativnyy zhurnal, Fizika, 1960, No. 2, p. 100, # 3248

AUTHORS: Stupochenko, Ye. V., Stakhanov, I. P., Samuylov, Ye. V., Pleshanov, A. S., Rozhdestvenskiy, I. B.

TITLE: Thermodynamic Properties of Air Within the Temperature Range From 1,000 to 12,000°K and the Pressure Range From 0.001 to 1,000 atm

PERIODICAL: V sb.: Fiz. gazodinamika. Moscow, AN SSSR, 1959, pp. 3-38

TEXT: A method is described in detail for the calculation of thermodynamic properties of a mixture of gases capable to chemical reactions and ionization. The thermodynamic functions of the air were determined in two stages. First the calculation was carried out of the thermodynamic parameters of the "pure" components, which was reduced to the calculation of the statistical sums for atoms, molecules and their ions. Then the composition of the air and its thermodynamic functions were calculated. For determining the composition of the air the system of non-linear algebraic equations was solved. The system included equations of the law of acting masses for each of the possible reactions in air and the processes of ionization, the equation of Dalton's law, the equations

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5 (4)

AUTHORS: Stupochenko, Ye. V., Osipov, A. I. SOV/76-33-7-13/40

TITLE: On the Kinetics of Thermal Dissociation of Diatomic Molecules

PERIODICAL: Zhurnal fizicheskoy khimii, 1959, Vol 33, Nr 7, pp 1526 - 1533 (USSR)

ABSTRACT: For the purpose of explaining the part played by the individual molecule collisions and by a disturbance of the equilibrium function of molecule distribution according to energy levels in the theory of thermal dissociation (D), the authors measured the rate of thermal (D) of diatomic molecules. It was assumed that the (D) of molecules resulted from a transition from the discrete oscillation state to the continuous one. In order to simplify investigations, the authors assumed that the dissociating gas was present as a relatively small impurity in a monatomic gas. The above explanations and mathematical deductions indicate among other things that in most cases interesting from practical standpoints the Boltzman distribution of molecules according to higher energy levels is heavily disturbed by (D) with rising temperature, which affects the reaction rate (and its temperature dependence).

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This is also confirmed by the deduced gas-kinetic equations (17), (24), and (29), which permit estimation of the effect of thermal (D) in a transition from highly excited oscillation levels to the continuous spectrum. The process of thermal (D) is effected by a transition of molecules from highly excited oscillation levels to the continuous spectrum. The number of molecules on the upper oscillation levels during the process of (D) differs from their equilibrium value. This deviation increases (as mentioned above) with rising temperature. The disturbance of equilibrium distribution according to oscillation levels affects the (D) considerably. From the above gas-kinetic equations analytic data were obtained on the (D)-rate and the molecule distribution according to oscillation levels that is not in equilibrium. There are 9 references, 7 of which are Soviet.

ASSOCIATION: Moskovskiy gosudarstvennyy universitet im. M. V. Lomonosova (Moscow State University imeni M. V. Lomonosov)

SUBMITTED: December 23, 1957

STUPOCHENKO, Ye.V.

4. Following is a list of the Soviet papers submitted to the combustion symposium:

L A Lovachev	The Dependence of Laminar Flame Properties on the Mechanism of Chain Reactions
L A Lovachev	The Theory of Flame Propagation in Systems Involving Branched Chain Reactions
[illegible], Ye.Ye.	On the Mechanism of Non-Adiabatic Ignition in [illegible]
I M Dmitriev K I Shchelkin Ya K Troshin	Some Questions of Analogy Between Combustion in a Normal Chamber and in a Detonation Wave
K I Shchelkin	On the Criterion of High-Frequency (Screaming) Vibrations Generation in a Turbulent Combustion Chamber
A I Rerlidov	A Simple Method for Determining Effective Activation Energies for Thermal Decomposition and Spontaneous Ignition of Certain Complex Molecules
L G Bolkhovitinov	On the Theory of Detonation Initiation by Impact
P A Tesner	The Theory of Activation of Gaseous Reactions with Solid Carbon
P A Tesner	Formation of Dispersed Carbon by Explosion and Thermal Decomposition of Acetylene
TESNER, P.A. SAFAREK, I.S. ROSENOVICH, Ye. Ya.	Formation of Dispersed Carbon in Hydrocarbon Diffusion Flames
BAYAKOVA, T.V. LATYPOV, S.G.	Effect of Dissociation on the Parameters of Reflected Shock Waves in Carbon Dioxide
LATYPOV, S.G. SOLOUKHIN, R.I.	Study of Combustion of Adiabatically Heated Gas Mixture
I M Simkhovich K K Shchelkin	Some Methods for Studying Two-Phase Fuel-Air Mixtures in a Flow
K K Shchelkin	Propagation of Flame in Turbulent Flow of Two-Phase Fuel-Air Mixture
STUPOCHENKO, Ye. V. SOKOLIK, A.S. PLESHANOV, A.S. ROZENTSVEIG, I.B. STAKHOV, I.P.	Thermodynamic Properties of Air at High Temperatures
A S Predvoditelev	Condition of Regular Movement of Strong Shocks and Detonation
A S Predvoditelev	Some Remarks on the Regular Movement of Shocks with Spherical and Cylindrical Symmetry
A S Predvoditelev	Regular Motion of Shocks and of Detonation from the Viewpoint of Maxwell's Transfer Equations

STUPOCHENKO, Ye. V

PHASE I BOOK EXPLOITATION SOV/4467

Predvoditelev, Aleksandr Savvich, Yevgeniy Vladimirovich Stupochenko, Viktor Pavlovich Ionov, Aleksandr Sergeyevich Pleshanov, Igor' Borisovich Rozhdestvenskiy, and Yevgeniy Vasil'yevich Samuylov

Termodinamicheskiye funktsii vozdukha dlya temperatur ot 1000 do 12,000° K i davleniy ot 0,001 do 1000 atm (grafiki funktsiy) (Thermodynamic Functions of the Air for Temperatures From 1,000 to 12,000° K. and Pressures From 0.001 to 1,000 atm. /Graphs of the Functions/) Moscow, Izd-vo AN SSSR, 1960. 53 p. Errata slip inserted. 2,500 copies printed.

Sponsoring Agencies: Akademiya nauk SSSR. Energeticheskiy institut imeni G.M. Krzhizhanovskogo; Ministerstvo vysshego obrazovaniya SSSR; Moskovskiy gosudarstvennyy universitet imeni M.V. Lomonosova. Fizicheskiy fakul'tet.

Resp. Ed.: A.S. Predvoditelev, Corresponding Member, Academy of Sciences USSR.

PURPOSE: This book is intended for scientists and engineers concerned with thermodynamic air functions.

Thermodynamic Functions of the Air (Cont.) SOV/4467

COVERAGE: The publication contains diagrams of thermodynamic air functions plotted as sets of curves in relation to temperature and pressure, where pressure has been taken as parameter. In addition, an approximation method for calculation of the straight shock is described. Universal curves, representing the dependence of the ratio of pressures and enthalpies along the shock on the M number, are given. The diagrams have been plotted using exact data computed by means of an electronic computer at the Vychislitel'nyy tsentr Akademii nauk SSSR (Computing Center, Academy of Sciences USSR). The work presented in this publication was done by scientific workers of the Laboratory of Combustion Physics at the Energeticheskiy institut AN SSSR (Power Engineering Institute, Academy of Sciences USSR), and the Department of Molecular Physics of the Division of Physics at MGU (Moscow State University) under the general direction of Professor A.S. Predvoditelev, Corresponding Member of the Academy of Sciences USSR. There are 3 references, all Soviet.

TABLE OF CONTENTS:

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STUPOCHENKO, Ye. V., STACHANOV, I. P. (Moscow)

"A Contribution to the Theory of Supersonic Flows in Relaxing Media."

report presented at the First All-Union Congress on Theoretical and Applied Mechanics, Moscow, 27 Jan - 3 Feb 1960.

82837
S/048/60/024/008/014/017
B012/B067

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24.6100

AUTHORS: Osipov, A. I., Stupochenko, Ye. V.

TITLE: Energy Transfer in Molecular Collisions

PERIODICAL: Izvestiya Akademii nauk SSSR. Seriya fizicheskaya, 1960, Vol. 24, No. 8, pp. 992-995

TEXT: In the present paper the semiclassical method of calculating the probabilities is investigated and the probabilities of a transfer of the translation energy in molecular collisions with strongly non-adiabatic course into oscillation energy is determined. Also the probabilities of a transfer of the oscillations in molecular collisions were determined. The investigation was made with central collisions of diatomic molecules, where the nuclei of the colliding molecules move along a straight line. The transfer probabilities are determined by an asymptotic solution of the steady Schrödinger equation for the collision. C. Zener (Ref. 3) suggested a system of equations (1) and (2) for determining these probabilities. The solution of this system is simpler than that of the

Energy Transfer in Molecular Collisions

mentioned Schrödinger equation, however, the problem of the limits of applicability of such an approximation has not been solved. Usually, for sufficiently high velocities of the relative motion and for $\Delta E \leq E$, the agreement between the results obtained in the calculation by the method of distorted waves, and those which are obtained from the method by Zener (Refs. 3,4) will be satisfactory. ΔE denotes the energy transferred, E the original reserve of kinetic energy. The authors deduced the system of equations (1) and (2) from the steady Schrödinger equation. In this connection it was found that besides the mentioned conditions also condition (3) must be fulfilled. This condition is fulfilled a priori when the amplitude of the atom oscillations in the molecule is considerably smaller than the radius of action of the intermolecular forces. Formula (4). Practically, this condition (3) is fulfilled in the first oscillation levels. In the following, the method shown here for determining the probabilities is applied to the transition of translation energy into oscillation energy in collisions of atoms with molecules in a strongly nonadiabatic course. Formula (7) for the transition probabilities is obtained. It is pointed out that

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holds for any interaction potential if condition (6) (Ref. 6) is fulfilled. The method described here may be used for determining the probabilities of an oscillation transfer in molecule collisions irrespective of the degree of the adiabatic course of the collision. Formula (11) for the probability of the energy transfer is derived in an analogous way. Its application is demonstrated by an example. There are 7 references: 3 Soviet, 3 British, and 1 German.

ASSOCIATION: Moskovskiy gos. universitet im. M. V. Lomonosova
(Moscow State University im. M. V. Lomonosov)

Card 3/3

81572

S/076/60/034/06/18/040
B015/B061

24.5300

AUTHORS: Stupochenko, Ye. V., Samuylov, Ye. V., Pleshanov, A. S., Rozhdestvenskiy, I. B. (Moscow)

TITLE: Thermodynamic Functions of Air at High Temperatures

PERIODICAL: Zhurnal fizicheskoy khimii, 1960, Vol. 34, No. 6, pp. 1265-1274

TEXT: The thermodynamic properties of air and its components were examined at temperatures from 12000° to 20000°K and pressures from 0.001 to 1000 atm. The calculations had to be carried out in three stages for such high temperatures: 1) Calculation of the thermodynamic functions of the components of air, and a calculation of the equilibrium constants for dissociation and ionization; 2) Calculation of the composition of air at different temperatures and pressures, and 3) Calculation of the thermodynamic properties of air. It was established that the thermodynamic functions of air can be calculated with sufficient accuracy by methods of statistical physics, with consideration of the Coulomb interaction of the charged particles by the Debye-Hückel equation, and with

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consideration of the linear dimensions of the excited particles by the method of Fermi and Urey. At a pressure of 1000 at, and a temperature of 20000°K, the maximum error is some percent. This calculation error is valid for ionized components of air at 1000 at and in the whole temperature range from 12000° to 20000°K. Calculation formulas for the initially mentioned temperature- and pressure ranges are given, as are the calculated values of the thermodynamic function and the composition of air. The calculations for the pressure range from 0.001 to 1 at were carried out with consideration of a dissociation of N_2 and O_2, and simple and double ionization of N, O, and Ar. In the pressure range from 1 to 1000 at the dissociation of N_2 and O_2, the formation of NO, and simple ionization of N, O, and Ar were considered. The results are given diagrammatically (Fig. 7). An electronic computer of the type BU (VTs) of the AN SSSR (AS USSR) was used for the calculations. This work was carried out in course of a research program under the direction of Professor A. S. Predvoditelev in the institute named below. There are 7 figures, 1 table, and 10 references: 5 Soviet and 5 German.

S/020/60/134/004/003/023
B019/B067

10.7200

AUTHORS: Stupochenko, Ye. V. and Stakhanov, I. P.

TITLE: Equations of Relaxation Hydrodynamics

PERIODICAL: Doklady Akademii nauk SSSR, 1960, Vol. 134, No. 4, pp. 782 - 785

TEXT: The setting-up time τ of the local thermodynamical equilibrium widely varies in different processes. If the hydrodynamical quantities strongly change during the time τ the relaxation processes must be changed in the equations of hydrodynamics. The authors set up the following fundamental equations of relaxation hydrodynamics: $d\varrho/dt + \varrho \mathrm{div}\vec{v} = 0$ (3); $\varrho d\vec{v}/dt + \mathrm{grad}p = 0$ (3'); $ds/dt = \frac{K}{T}(\varepsilon_\xi)^2$ (3"); $d\xi/dt = -K\varepsilon_\xi$ (3"'). Here, pressure p and temperature T are determined from the equations $p = \varrho^2 \varepsilon_\varrho$, $T = \varepsilon_s$. Furthermore, the following relation holds between the phenomenological coefficient K and τ: $\tau = 1/K\varepsilon_{\xi\xi}$. The properties of system (3) are then studied. First, it is shown that $\mathrm{curl}\vec{v}$

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changes with time. The authors demonstrate that the differential equation $\frac{\partial}{\partial t}(\partial^2\vec{v}/\partial t^2 - c_\infty^2\Delta\vec{v}) + \partial^2 v/\partial t^2 - c_0^2\Delta\vec{v} = 0$ (6) describes the propagation of weak disturbances in a relaxing medium. Similar equations may be obtained for other hydrodynamical quantities. The differential equation (16) $\frac{\partial \zeta_0}{\partial \varrho}\varrho \mathrm{div}\vec{v} = \frac{1}{\tau}\zeta^{(1)}$ is then obtained by methods of nonlinear mechanics and statistical physics with an accuracy to the terms with μ^2 for (3"'); $\mu = v\tau/L$. The equation of motion $\varrho d\vec{v}/dt = -\mathrm{grad}p_0 + \mathrm{grad}(\zeta \mathrm{div}\vec{v})$ is obtained in second approximation from this differential equation. Here, $\zeta = -(\partial p/\partial \zeta)_{\zeta=\zeta_0}\tau\frac{\partial \zeta_0}{\partial \varrho}\varrho$ and $\zeta = \tau\varrho(c_\infty^2 - c_0^2)$, which quantities have the significance of a second coefficient of viscosity. The survey given under the condition that $\omega \ll 1$ is not concluded and equations in a better approximation may be obtained in this manner. There are 6 references: 5 Soviet and 1 US.

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Equations of Relaxation Hydrodynamics

S/020/60/134/004/003/023
B019/B067

ASSOCIATION: Moskovskiy gosudarstvennyy universitet im. M. V. Lomonosova (Moscow State University imeni M. V. Lomonosov)

PRESENTED: March 17, 1960, by G. I. Petrov, Academician

SUBMITTED: March 15, 1960

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84824

S/020/60/134/005/007/023
B019/B060

10.5800 also 1207

AUTHORS: Stalhanov, I. P. and Stupochenko, Ye. V.

TITLE: Structure of Mach Lines in Relaxing Media

PERIODICAL: Doklady Akademii nauk SSSR, 1960, Vol. 134, No. 5, pp. 1044 - 1047

TEXT: The authors studied, from the viewpoint of relaxation hydrodynamics, the Mach lines observable in a flow around a cone (approach angle 0). Proceeding from flow equation $1(\partial/\partial x)\{(M_\infty^2-1)\partial^2 v/\partial x^2-\partial^2 v/\partial y^2\}$ $+ (M_o^2-1)\partial^2 v/\partial x^2 - \partial^2 v/\partial y^2 = 0$ (1) of relaxation hydrodynamics they state that similar equations may be set up for the disturbances of other hydrodynamic quantities (pressure, temperature, etc). The following considerations are restricted to $M_\infty > 1$, and solution

$$v(x,y) = (\alpha u/2\pi i)\int_{-U} \frac{\exp[i\xi(x' - c(\xi)y')]}{\xi}\, d\xi \quad (6)$$

is written down. $c(\xi)$ is defined as follows:

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Structure of Mach Lines in Relaxing Media

S/020/60/134/005/007/023
B019/B060

$c(\xi) = \sqrt{\frac{i(M_\infty^2 - 1)\xi + (M_c^2 - 1)}{i\xi + \sqrt{M_\infty^2 - 1}}}$, $x' = x/l$, $y' = y/l$. Characteristic (9): $x - \sqrt{M_\infty^2 - 1}\, y = 0$ is found to separate the disturbed flow from the undisturbed one, and the behavior of the solution along the characteristic (9) is examined. The following relation is obtained for the solution on characteristic (9):

$$v(x,y) = \begin{cases} 0 & \text{at } y > \frac{1}{\sqrt{M_\infty^2 - 1}}\, x \\ a u e^{-\lambda^2 y/l} I_0(z) & \text{at } y < \frac{1}{\sqrt{M_\infty^2 - 1}}\, x \end{cases} \qquad (10)$$

$\lambda^2 = \frac{1}{2} \frac{M_0^2 - M_\infty^2}{\sqrt{M_\infty^2 - 1}} > 0$. The Bessel function $I_0(z)$ in the vicinity of characteristic (9) is found to be about equal to unity. Thus a discontinuity appears near the cone vertex, whose intensity decreases ex-

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PREDVODITELEV, A.S.; STUPOCHENKO, Ye.V.; ROZHDESTVENSKIY, I.B.; SAMUYLOV, Ye.V.; PLESHANOV, A.S.; ORLOVA, I.A., red.; KORKINA, A.I., tekhn. red.

[Tables of the gas dynamic and thermodynamic values of an air flow behind a direct shock wave for velocities of the incident wave up to 4500 m/sec.] Tablitsy gazodinamicheskikh i termodinamicheskikh velichin potoka vozdukha za priamym skachkom uplotneniia; dlia skorostei nabegaiushchego potoka do 4500 m/sek. Moskva, Vychislitel'nyi tsentr AN SSSR, 1962. 131 p. (MIRA 16:4)

1. Chlen-korrespondent Akademii nauk SSSR (for Predvoditlev).
(Air flow)

PREDVODITELEV, A.S., prof.; STUPOCHENKO, Ye.V.; PLESHANOV, A.S.; SAMUYLOV, Ye.V.; ROZHDESTVENSKIY, I.B.; ORLOVA, I.A., red.; POPOVA, N.S., tekhn. red.

[Tables of the thermodynamic functions of air for temperatures from 200° to 6000°K and pressures from 0.00001 to 100 atm.]Tablitsy termodinamicheskikh funktsii vozdukha; dlia temperatur ot 200° do 6000°K i davlenii ot 0,00001 do 100 atmosfer. Moskva, Akad. nauk SSSR. Vychislitel'nyi tsentr, 1962. 267 p. (MIRA 15:12)

(Air--Thermodynamic properties)
(Physics--Tables, etc.)

STUPOCHENKO, Ye. V.

AID Nr. 981-2 3 June

PROBLEMS OF HYDRODYNAMICS OF RELAXING MEDIA (USSR)

Stakhanov, I, P., and Ye. V. Stupochenko. Zhurnal prikladnoy mekhaniki i tekhnicheskoy fiziki, no. 2, Mar-Apr 1962, 3-20. S/207/63/000/002/001/025

Some general properties of equations of motion of the thermodynamically non-equilibrium fluid are studied, including the possibility of transition to equilibrium hydrodynamics in the limiting case of small relaxation time. The law of propagation of small disturbances in relaxing media is studied and two different cases are considered: 1) weak shock wave and 2) steady two-dimensional supersonic flow past a slender wedge at zero incidence. It is shown that, with respect to the order of "relaxation length," the propagation occurs along the characteristics of the equations of relaxation hydrodynamics. Therefore, weak discontinuities whose directions do not coincide with usually observed Mach lines occur near the obstacles. A detailed study is presented of the variation of the disturbance character downstream from its origin, and an equation describing the law of propagation is established. [ANB]

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L 9923-63 EWT(l)/BDS--AFFTC/ASD--IJP(C)
ACCESSION NR: AP3002803 S/0207/63/000/003/0041/0044

52

AUTHOR: Osipov, A. I.; Stupochenko, Ye. V.

TITLE: Nonequilibrium energy distribution with respect to the vibrational degrees of freedom of molecules when the Maxwell distribution is disturbed

SOURCE: Zhurnal prikladnoy mekhaniki i tekhnicheskoy fiziki, no. 3, 1963, 41-44

TOPIC TAGS: energy distribution, fast-particle sources

ABSTRACT: The distribution of vibrational energy in a gas disturbed by a fast-particle source has been investigated. It is shown that the disturbance of Maxwell distribution is usually accompanied by disturbance of the equilibrium energy distribution with respect to all degrees of freedom. In the case of a model of harmonic oscillators comprising a small impurity of diatomic molecules in a light monatomic gas disturbed by a source generating similar monatomic particles whose initial kinetic energy is smaller than hNu, the distribution of vibrational energy can be represented as the Boltzmann distribution characterized by the temperature THETA. For a THETA different from the temperature T of the

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L 9928-63

ACCESSION NR: AP3002803

light gas (for sufficiently intense sources THETA may considerably exceed T), an explicit expression is obtained in terms of source parameters. The deviation of vibrational energy distribution from equilibrium is associated with a relatively small perturbation of the Maxwell distribution (small in the sense that only a small portion of all the particles of the monatomic gas is affected by perturbations). Orig. art. has: 10 formulas.

ASSOCIATION: none

SUBMITTED: 14Mar63 DATE ACQ: 16Jul63 ENCL: 00

SUB CODE: 00 NO REF SOV: 004 OTHER: 000

Card 2/2

S/053/63/079/001/003/003
B102/B186

AUTHORS: Osipov, A. I., Stupochenko, Ye. V.

TITLE: Non-uniform energy distributions with respect to the vibrational degrees of freedom in gases

PERIODICAL: Uspekhi fizicheskikh nauk, v. 79, no. 1, 1963, 81-113

TEXT: This review article deals with causes and effects of non-uniform energy distribution in gas kinetics. The introduction is followed by the two chapters of the paper: (1) The vibrational relaxation (Introduction; gas-kinetic equations; transition probabilities; vibrational relaxation in an isothermal system - relaxation equations; vibrational relaxation in an isothermal system - the distribution of the molecules with respect to the vibrational levels; vibrational relaxation in an isolated system - the gas-kinetic equations; vibrational relaxation in an isolated system - the distribution of the molecules with respect to the vibrational levels). (2) The distribution of the vibration energy in systems with particle sources (Introduction; thermal dissociation corsidered as sinks of vibrationally excited molecules;

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ACCESSION NR: AP4044717 S/0207/64/000/004/0029/0034

AUTHORS: Safaryan, M. N. (Moscow); Stupochenko, Ye. V. (Moscow)

TITLE: Rotational relaxation of diatomic molecules in a light inert gas

SOURCE: Zhurnal prikladnoy mekhaniki i tekhnicheskoy fiziki, no. 4, 1964, 29-34

TOPIC TAGS: vibrational relaxation, inert gas, diatomic molecule, harmonic oscillator, rotational relaxation, Fokker Planck equation

ABSTRACT: The rotational relaxation of heavy diatomic molecules (a rigid rotator) was analyzed in a light inert gas under conditions of strongly nonadiabatic collisions between atoms and molecules. The initial energy distribution of the molecule corresponds to $T_0 < T$ (T- temperature of the inert gas). The Boltzmann kinetic equation is written for the distribution function $f(E, \mathcal{E}, t)$, (where $E, \mathcal{E}$ are the translation and rotational energies respectively), using the principle of detailed balancing and expanding the right hand side in powers of Δ and Δ_1. The Fokker-Planck equation of diffusion is obtained in the $(E, \mathcal{E})$ space, or $\partial f / \partial t = -\operatorname{div} \mathbf{j}$, where

$$j_E = -B_E\left(\frac{\partial f}{\partial E} - f\frac{\partial \ln f^0}{\partial E}\right) - B_{E\mathcal{E}}\left(\frac{\partial f}{\partial \mathcal{E}} - f\frac{\partial \ln f^0}{\partial \mathcal{E}}\right),$$

$$j_{\mathcal{E}} = -B_{\mathcal{E}}\left(\frac{\partial f}{\partial \mathcal{E}} - f\frac{\partial \ln f^0}{\partial \mathcal{E}}\right) - B_{\mathcal{E}E}\left(\frac{\partial f}{\partial E} - f\frac{\partial \ln f^0}{\partial E}\right),$$

and

$$B_E = \frac{\langle \Delta_1^2 \rangle}{2\tau} = \frac{1}{2}\iint \Delta_1^2 w(E, \mathcal{E}, \Delta_1, \Delta)\, d\Delta_1 d\Delta,$$

$$B_{\mathcal{E}} = \frac{\langle \Delta^2 \rangle}{2\tau_1}, \quad B_{\mathcal{E}E} = \frac{\langle \Delta_1 \Delta \rangle}{2\tau}.$$

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ACCESSION NR: AP4044717

The coefficients of the above equation are then determined from the collision dynamics of I_2, Br_2, and Cl_2 molecules with He atoms. The change in momentum for atoms is given by $\Delta p = 2mb \sin \frac{1}{2}\chi$, and change in molecular energy by $\Delta_1 \equiv \Delta E = \frac{P\Delta p \cos\beta}{2M} \quad \left(E = \frac{P^2}{4M}\right)$. Coefficient B_E then yields $B_E = bE, \quad b = \frac{32}{5}\sqrt{\frac{\pi}{7}}\, nkT\, \Omega_{12}^{(1,1)}$, where Ω_{12} is the total scattering cross section. Introducing rotational energy distribution function Φ $\Phi(\varepsilon, t) = \int_0^\infty f(E, \varepsilon, t)\, dE$, the Fokker-Planck equation is obtained in the form $\frac{\partial \Phi}{\partial t} = \frac{\partial}{\partial \varepsilon}\left[b\varepsilon\left(\frac{\partial \Phi}{\partial \varepsilon} + \frac{1}{kT}\Phi\right)\right]$ which is identical to harmonic oscillator relaxation equation in a thermostat $h\nu/kT \ll 1$. Similarily, the equation for translational degree of freedom yields $\frac{\partial F}{\partial t} = \frac{\partial}{\partial E}\left[bE\left(\frac{\partial F}{\partial E} + \left(\frac{1}{kT} - \frac{1}{2E}\right)F\right)\right]$. The solutions of both of the above equations are then given in terms of generalized Laguerre polynomials. Orig. art. has: 38 equations.

ASSOCIATION: none

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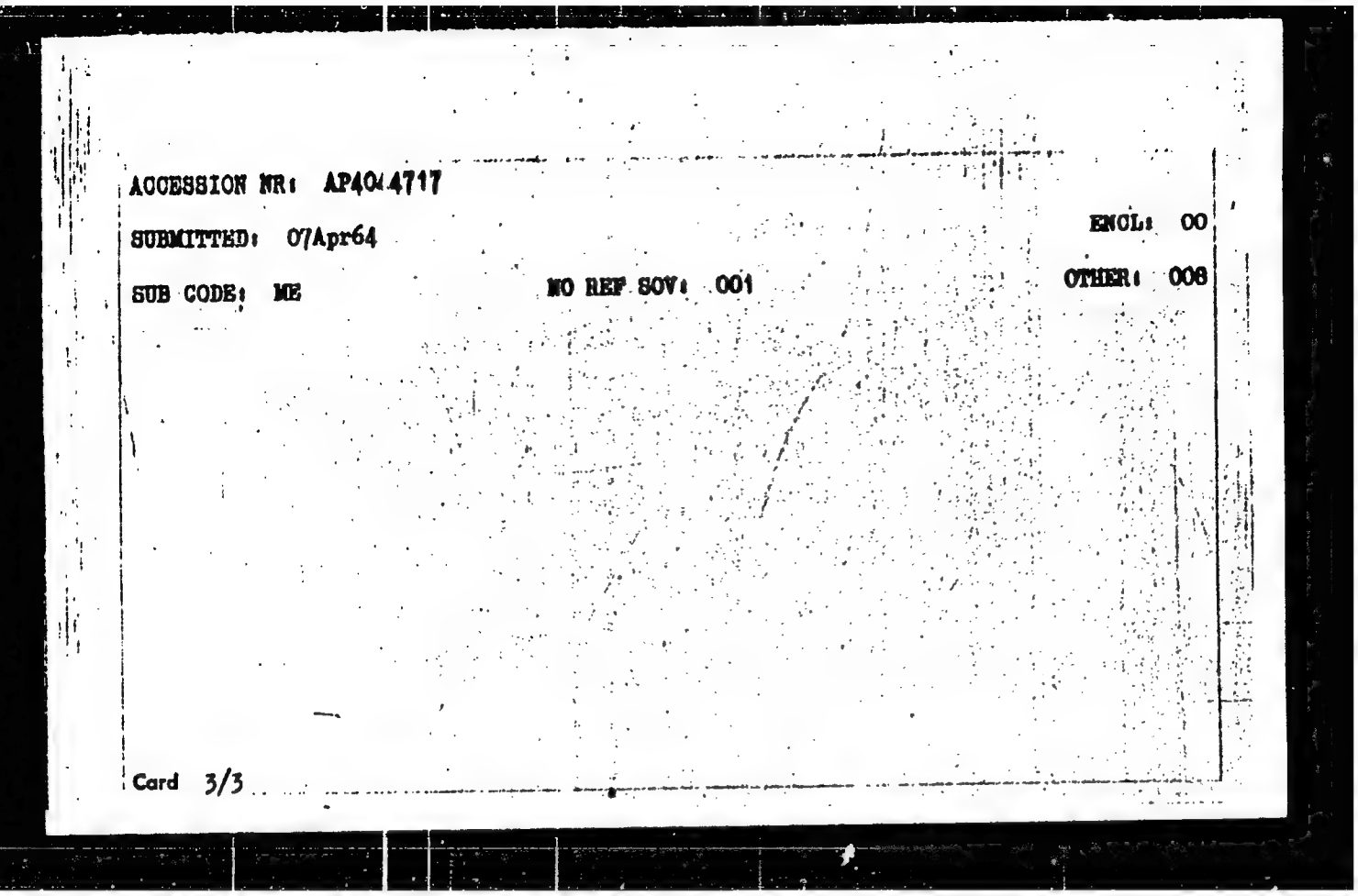

ACCESSION NR: AP4044717

SUBMITTED: 07Apr64 ENCL: 00

SUB CODE: ME NO REF SOV: 001 OTHER: 008

Card 3/3

STUPOCHENKO, Yevgeniy Vladimirovich; LOSEV, Staliy Andreyevich; OSIPOV, Aleksey Iosifovich; SAMUYLOV, Ye.V., red.

[Relaxation processes in shock waves] Relaksatsionnye protsessy v udarnykh volnakh. Moskva, Nauka, 1965. 484 p. (MIRA 19:1)

L 46167-65 EWT(1) IJP(c)
ACCESSION NR: AP5009548 S/0207/65/000/001/0093/0095

AUTHOR: Safaryan, M. N. (Moscow); Stupochenko, Ye. V. (Moscow)

TITLE: Contribution to the theory of vibrational relaxation of diatomic molecules

SOURCE: Prikladnoy mekhaniki i tekhnicheskoy fiziki, no. 1, 1965, 93-95

TOPIC TAGS: diatomic molecule, vibrational relaxation, relaxation time, gas kinetic equation, molecular collision

ABSTRACT: The relaxation of diatomic molecules (harmonic oscillators) is considered within the framework of classical mechanics in a relatively light inert gas which serves as a thermostat. The gas-kinetic equation for the distribution function of the diatomic molecule is approximated by a Fokker-Planck equation in the space of the energies of translational, rotational, and vibrational motions under the assumption that the collisions are strongly non-adiabatic. In this approximation the different degrees of freedom relax independently of one another, although the characteristic terms of these relaxations are found to be of the same order of magnitude. The vibrational relaxation time is expressed in terms of the gas-kinetic integral. It is assumed that the molecules and atoms interact clas-

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L 46567-65
ACCESSION NR: AP5009548

sically, that the molecule vibrations are harmonic and do not change the moment of inertia of the molecule, and that a colliding atom interacts only with the nearest atom of the molecule. The vibrational relaxation time is determined in accordance with a procedure previously used by the authors for rotational relaxation of diatomic molecules in a light intert gas (PMTF, 1964, No. 4). Orig. art. has: 15 formulas.

ASSOCIATION: None

SUBMITTED: 24Sep64 ENCL: 00 SUB CODE: NP, ME

NR REF SOV: 003 OTHER: 001

Card 2/2

L00813-66 EWT(1)/EWP(m)/EWA(d)/FCS(k)/EWA(l)
ACCESSION NR: AP5020823 UR/0020/65/163/004/0849/0852

25
27
B

AUTHOR: Stupochenko, Ye. V.

TITLE: Temperature jump in multi-atomic gases

SOURCE: AN SSSR. Doklady, v. 163, no. 4, 1965, 849-852

TOPIC TAGS: rarefied gas flow, temperature field, temperature jump, accomodation coefficient

ABSTRACT: The temperature jump conditions at the wall of a multi-atomic gas are investigated analytically. In particular, the effect of zone l ($l \sim \sqrt{D\tau}$) is estimated on the temperature jump condition under the assumption that $l \ll L$, where L is the characteristic dimension of the temperature field. The f degrees of freedom of the molecule are divided into two groups: $f = f_1 + f_2$ where f_1 includes the translational and rotational degrees, and f_2, the vibrational degrees of freedom. The accomodation coefficient of group f_2 is assumed to be less than that of f_1. The region near the wall is divided into three zones. In zone 1, the thickness "a" is assumed of the order l, and the temperature conditions are written as follows

$$\delta_1 T_1 = g_1 \partial T_1 / \partial x|_{x=a},$$

$$\delta_2 T = g_2 \partial T / \partial x|_{x=a}.$$

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L 14078-66 EWT(l)/EWP(m)/EWA(d)/FCS(k)/EWA(h) WW
ACC NR: AP6002365 SOURCE CODE: UR/0207/65/000/006/0116/0118

AUTHOR: Stupochenko, Ye. V. (Moscow)

ORG: none

TITLE: An estimate of the front thickness of strong shock waves in gases

SOURCE: Zhurnal prikladnoy mekhaniki i tekhnicheskoy fiziki, no. 6, 1965, 116-118

TOPIC TAGS: shock wave structure, shock wave front, Navier Stokes equation

ABSTRACT: In hydrodynamics of ideal fluids, the shock wave is represented by a geometrical discontinuity surface of hydrodynamic and thermodynamic quantities. However, the incorporation into the theory of viscosity and of heat conduction widens the transition region to a layer of finite thickness. The estimate of this thickness Δx using Navier-Stokes equation gives an approximate answer

$$\Delta x \approx l_0$$

where l_0 is the mean free path. Since the equations of macroscopic aerodynamics are valid

Card 1/2

ACC NR: AM6008480 Monograph UR/

Stupochenko, YEvgeniy Vladimirovich; Losev, Staliy Andreyevich; Osipov, Aleksey Iosifovich

Relaxation processes in shock waves (Relaksatsionnyye protsessy v udarnykh volnakh) Moscow, Izd-vo "Nauka," 1965. 482 p. illus., biblio., index. 4000 copies printed.

TOPIC TAGS: gas relaxation, vibrational relaxation, relaxation process, relaxing flow, shock tube, shock wave, shock wave heating, shock wave structure, strong shock wave, gas dissociation, radiation heat transfer, nonequilibrium flow, equilibrium flow, thermodynamic equilibrium, gas dynamics, thermal dissociation

PURPOSE AND COVERAGE: This book is intended for scientific personnel concerned with the problems of gasdynamics, high-temperature thermal physics, chemical physics, and also for candidates and senior students of these specialties. The present state of experimental and theoretical investigations of relaxation processes taking place in shock waves in gases and air is described and analyzed. Particular attention is paid to physical aspects of relaxation phenomena and to elucidation of patterns in processes taking place in the establishment of statistical equilibrium with respect to various degrees of freedom. It contains a foreword and six chap-

Card 1/4 UDC: 533.601.172

ACC NR: AM6008484

ters. The first chapter deals with general problems and presents a qualitative description of the relaxation process and the fundamentals of experimental methods. The second deals with shock tubes as a means for generating and studying strong shock waves and related phenomena. Chapter three deals with the experimental methods used for investigating nonequilibrium phenomena taking place in shock waves. Chapter four is devoted to a theoretical analysis of relaxation processes and available experimental data. Chapter five deals with nonequilibrium phenomena taking place behind a shock front in air. Chapter six briefly outlines the gas flow properties in relaxation and contains a brief analysis of gaskinetic methods for deriving equations of equilibrium and relaxation hydrodynamics and methods of the thermodynamics of irreversible processes. The authors are grateful to N. A. Generalov, Yu. P. Rayzer, and E. V. Samuylov for valuable comments.

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YAN TSZYAN'-BEY [Yang Chien-pei]; STARODUBROVSKAYA, V.N.; KONOVALOV, Ye.A.; GUAN' DA-TUN [Kuan Ta-t'ung]; OLEYNIK, I.P.; SEMENOVA, L.S.; KHE LI [He Li]; CHZHAN SY-TSYAN' [Chang Ssu-ch'ien]; VOINOV, A.M.; SHIRYAYEV, S.L.; KURAKIN, V.A.; STUPOV, A.D., red.; KANZVSKAYA, T.M., red.; GERASIMOVA, Ye.S., tekhn.red.

[Economy of the Chinese People's Republic, 1949-1959] Ekonomika Kitaiskoi Narodnoi Respubliki, 1949-1959. Moskva, Gosplanizdat, 1959. 304 p. (MIRA 13:5)

1. Zaveduyushchiy sektorom ekonomiki stran narodnoy demokratii Instituta ekonomiki AN SSSR (for Stupov).
(China--Economic conditions)

STUPOV, A.

Prague conference of economists of socialist countries. Vop. ekon. no.2: 156-157 F '59. (MIRA 12:5)
(Prague--Economics--Congresses)

YEVSTIGNEYEV, R.N.; STUPOV, A.D., kand.sel'skokhoz.nauk, red.; TOMASHPOL'SKIY, L.M., kand.ekon.nauk, red.; SMIRNOVA, A.I., vedushchiy red.; GONCHAROV, N.G., tekhn.red.

[Economic development of the Czechoslovak Republic] Razvitie ekonomiki Chekhoslovatskoi Respubliki. Moskva, Vses.in-t nauchn. i tekhn.informatsii. 1960. 99 p. (MIRA 13:6)
(Czechoslovakia--Economic conditions)

STUPOV, Aleksey Dmitriyevich; Prinimala uchastiye LUKOVNIKOVA, S.V., kand.sel'skokhoz.nauk, mladshiy nauchnyy sotrudnik; KANEVSKAYA, T.M., red.; GERASIMOVA, Ye.S., tekhn.red.

[Development of socialist agriculture in Bulgaria] Razvitie sotsialisticheskogo sel'skogo khozyaistva v Bolgarii. Moskva, Gosplanizdat, 1960. 273 p. (MIRA 14:3)

1. Sektor ekonomiki stran narodnoy demokratii Instituta ekonomiki Akademii nauk SSSR (for Lukovnikova).
(Bulgaria--Agriculture, Cooperative)

STUPOV, A.; GERTSOVICH, G.

Further consolidation of the economic foundation of the world system of socialism. Vop.ekon. no.9:55-[illegible] '61.
(MIRA 14:8)
(Communist countries--Economic conditions)

STUPOV, Aleksey Dmitriyevich; RABINOVICH, M., red.; KLIMOVA, T., tekhn. red.

[Fraternal cooperation among socialist countries] Bratskoe sotrudnichestvo sotsialisticheskikh stran. Moskva, Gospolitizdat, 1962. 60 p. (MIRA 15:7)

1. Institut ekonomiki mirovoy sotsialisticheskoy sistemy (for Stupov).
(Communist countries—Economic policy)

SERGEYEV, V.P.; TARNOVSKIY, O.I.; MITROFANOVA, N.M.; SHMELEV, N.P.; SHABUNINA, V.I.; SKVORTSOVA, A.I.; VASIL'TSOV, V.D.; KRASNOGLAZOV, B.P.; BELYAYEV, Yu.N.; KURAKIN, V.A.; YUMIN, M.N.; SERGEYEV, V.P.; ZOTOVA, N.A.; MATVIYEVSKAYA, E.D.; STUPOV, A.D., otv. red.; LISOV, V.Ye., red. izd-va; NOVICHKOVA, N.D., tekhn. red.

[Economic cooperation and mutual aid in socialist countries] Ekonomicheskoe sotrudnichestvo i vzaimopomoshch' sotsialisticheskikh stran. Moskva, Izd-vo Akad. nauk SSSR, 1962. 272 p. (MIRA 16:2)

1. Akademiya nauk SSSR. Institut ekonomiki mirovoy sotsialisticheskoy sistemy.

(Communist countries--Foreign economic relations)
(Communist countries--Industries)

RYABUSHKIN, T.V., doktor ekonom. nauk, prof., nauchnyy red.; STUPOV, A.D., kand. ekonom. nauk, nauchnyy red.; LEPNIKOVA, Ye., red.; BESSUDNOVA, N., mladshiy red.; MOSKVINA, R., tekhn. red.

[The economy of socialist countries in figures for 1961; consicie statistics]Ekonomika stran sotsialisticheskogo lageria v tsifrakh, 1961 god; kratkii statisticheskii sbornik. Moskva, Sotsekgiz, 1962. 236 p. (MIRA 16:1)
(Communist countries—Statistics)

USIYEVICH, M.A., kand. ekon. nauk; VIDMAR, V.N., kand. ekon. nauk; STUPOV, A.D., kand. sel'khoz. nauk; STARODUBROVSKAYA, V.N., kand. ekon. nauk; STOROZHEV, V.I., kand.ist. nauk; RUDAKOV, Ye.V., kand. ekon. nauk; KIRANOV, P., prof.; KHORVAT, L. [Horvat, L.], kand. ekon. nauk; KROMM, K., doktor; FRUKK, Kh. [Frukk, H.], doktor; SHMIDT, V.[Schmidt, V.], prof., doktor; TEPIKHT, Ye.[Tepicht, E.], prof.; NIK, S. [Nic,S.], kand. ekon. nauk; DUMITRIY, D.[Dumitro, D.]; SVOBODA, K., kand. ekon. nauk; LEPNIKOVA, Ye., red.; KIRSANOVA, I., mladshiy red.; NOGINA, N., tekhn. red.

[Socialist reorganizations in the agriculture of the European people's democracies] Sotsialisticheskie preobrazovaniia v sel'skom khoziaistve evropeiskikh stran narodnoi demokratii. Moskva, Sotsekgiz, 1963. 334 p. (MIRA 16:7)

1. Akademiya nauk SSSR. Institut ekonomiki mirovoy sotsialisticheskoy sistemy.2. Institut ekonomiki mirovoy sotsialisticheskoy sistemy AN SSSR (for Usiyevich, Vidmar, Stupov, Starodubrovskaya, Storozhev, Rudakov).
(Europe, Eastern--Agriculture, Cooperative)

LISICHKINA, S.M., obshchiy red.; TOMASHPOL'SKIY, L.M., obshchiy red.; CHUTKERASHVILI, Ye.V., obshchiy red.; KARYAGIN, I.D., red.; KIR'YANOVA, Z.V., red.; MATVEYEV, P.V., red.; MOTORIN, A.I., red.; POPOV, I.V., red.; POPOV, N.N., red.; PROSKURYAKOV, A.V., red.; SOKOLOV, Yu.S., red.; STUPOV, I.D., red.; BELYAVSKIY, A.M., red.; GRAZHUL', V.S., red.; DANILOV, N.N., red.; RAKHMANINOV, G.I., red.; SHEVCHENKO, G.A., tekhn.red.

[Development of the national economy of the German Democratic Republic] Razvitie narodnogo khoziaistva Germanskoi Demokraticheskoi Respubliki. Moskva, Proizvodstvenno-izdatel'skii kombinat VINITI, 1959. 906 p. (MIRA 13:4)

1. Akademiya nauk SSSR. Institut nauchnoy informatsii.
(Germany, East--Economic conditions)

L 7914-66 EWT(d) IJP(c)

ACC NR: AP5027355 SOURCE CODE: UR/0043/65/000/004/0038/0046

AUTHORS: Ladyzhenskaya, O. A.; Stupyalis, L.

ORG: none

TITLE: Equations of mixed type

SOURCE: Leningrad. Universitet. Vestnik. Seriya matematiki, mekhaniki i astronomii, no. 4, 1965, 38-46

TOPIC TAGS: differential equation, partial differential equation, elliptic equation, hyperbolic equation, parabolic equation

ABSTRACT: The authors consider the problem of determining $u(x,t)$, satisfying one of $L_i^{(j)}u = f_i^{(j)}$, $i = 1,2,3$ for each $j = 1,2$ on $\Omega_j \times [0,T]$, and various initial conditions depending on i. Here i indicates an elliptic, parabolic, or hyperbolic type of equation. Conjugacy conditions on the common boundary of Ω_1 and Ω_2 are to be satisfied. The method of solution is illustrated on

Card 1/2 UDC: 517.946

L 7914-66
ACC NR: AF5027355

$$\left.\begin{aligned} -\Delta u &= f_1(x, t), \\ u_t - \Delta u &= f_2(x, t), \\ u_{tt} - \Delta u &= f_3(x, t), \end{aligned}\right\} \begin{matrix}(1)\\(2)\\(3)\end{matrix}$$

under simple conjugacy conditions. Orig. art. has: 39 formulas.

SUB CODE: MA/ SUBM DATE: 24Apr64/ ORIG REF: 007

Card 2/2

STURC, Josef

Reconstruction and modernization of chemical plants for producing precipitated calcium carbonate. Chem prum 14 no.11:569-573 N '64

1. Research Institute of Inorganic Chemistry, Usti nad Labem.

HUNGA

Actions of penicillin on the oxidation-reduction potential of *Staphylococcus aureus*. A. Kriml, J. Stur, and P. Turay (*Acta physiol. Acad. Sci. hung.*, 1951, 2, 449–551).—0·0005 to 0·001 Oxford units/ml. is the penicillin concn. that causes a rise in oxidation–reduction potential of sensitive strains of *S. aureus*. In resista nt strains not even concn. of 10·0 u./ml. have an effect on the oxidation–reduction potential. A. B. L. Bzinák.

STUR, J

KRAMLI, A.; STUR, J.; TURAY, P.

The change in the oxidation-reduction potential of Staphylococcus aureus on the action of penicillin; a preliminary report. Acta physiol. hung. 5 no.3-4:549-551 1954.

1. Biochemical Institute of the Medical University, Szeged.
(Received December 2, 1953)

(PENICILLIN, eff.
on oxidation-reduction potential of Micrococcus pyogenes aureus)
(MICROCOCCUS PYOGENES
aureus, oxidation-reduction potential, eff. of penicillin)
(OXIDATION-REDUCTION
potential of Micrococcus pyogenes aureus, eff. of penicillin)

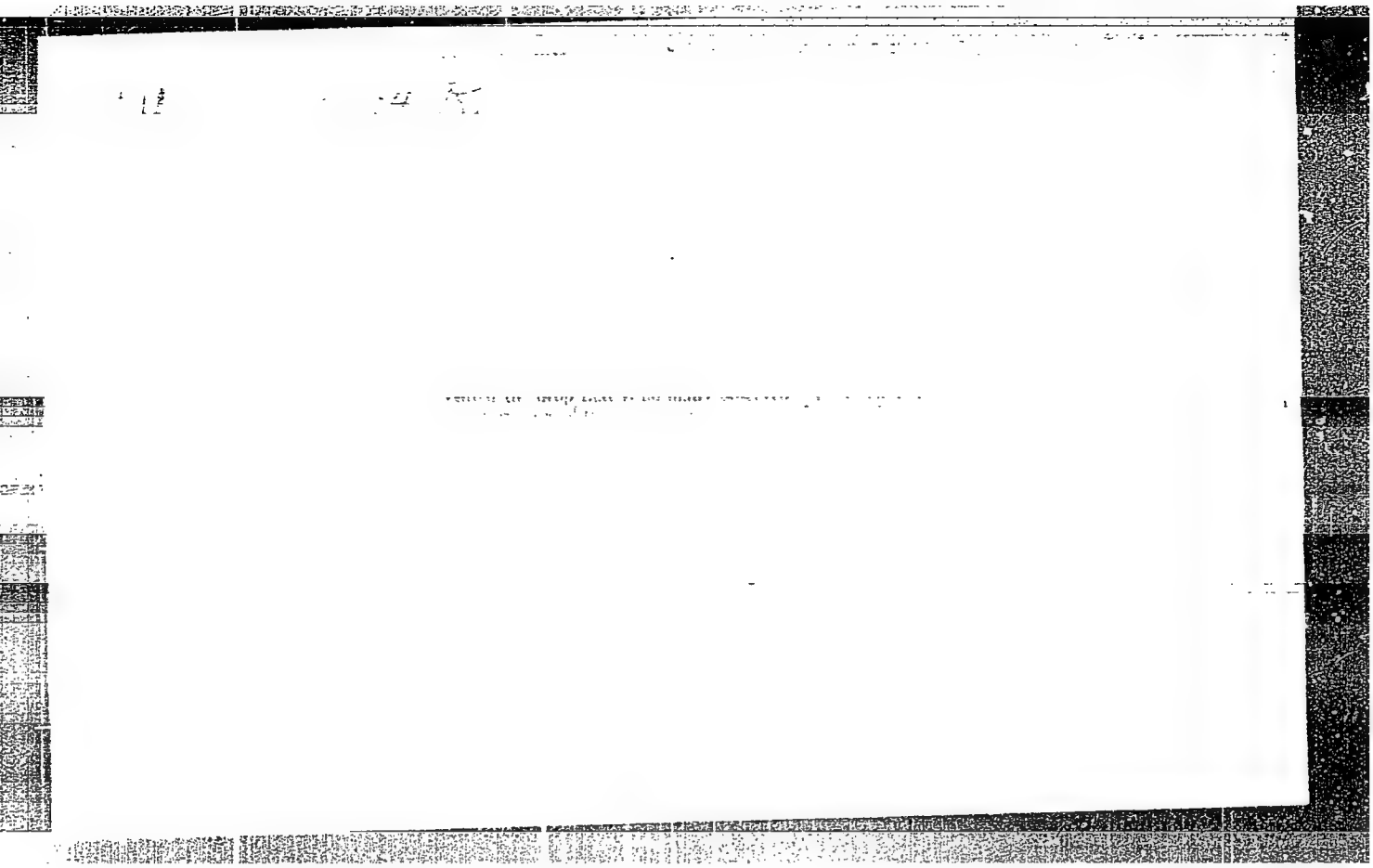
KRAMLI, A.,; STUR, J.K.,; TURAY, P.

Effect of penicillin and streptomycin on the redox potential of sensitive and resistant strains of Staphylococcus aureus.
Acta physiol. hung. 8 no.1:15-24 1955

1. Institute of Chemistry and Biochemistry University Medical School, Szeged (Received May 5, 1954)
(MICROCOCCUS PYOGENES, effects,
penicillin & streptomycin, redox potential in resist. & sensitive strains)
(PENICILLIN, effects,
on Micrococcus phogenes, redox potential in resist. & sensitive strains)
(STREPTOMYCIN, effects,
on Micrococcus pyogenes, redox potential in resist. & sensitive strains)

Action of oxidation-reduction systems on the metabolism of microorganisms. II. Investigation by oxidation-reduction potential of the yeast C-heamin complex. A. Kiraly, Judit Lantos, and Judit Stur (Univ. Szeged). *Acta Biol.* [illegible] summary. [illegible] verrigated whether the C-heamin complex of yeast replaced the C-heamin of some of the oxidation enzymes of the tricarboxylic acid cycle. The yeast removed the alien heme through abolition of the bond owing to spontaneous enzymic adaptation and restored the initially changed oxidation-reduction potential. Cytochrome c brought about a prolonged increase in the oxidation-reduction potential in the yeast cultures. In the presence of its own metabolic substance the cell did not develop an oxidation-reduction [illegible] effect. III. Effect of triglyceride acid or cholesterol [illegible] and Judit Lantos

[illegible] culture of *B. subtilis* with young cultures resulted in a [illegible]



APPROVED FOR RELEASE: 08/26/2000 CIA-RDP86-00513R001653710008-0"

SZUS, [illegible]; [illegible], K.; KISANTI, I.

"Electrometric investigations of tumorous rats." p. 139.

BIOLOGIAI KOZLEMENYEK. (Magyar Biologiai Tarsasag. Altalanos Biologiai Szakcsoportja). Budapest, Hungary, Vol. 6, No. 2, 1959.

Monthly list of East European Accessions (EEAI), LC, Vol. 8, No. 8, August 1959.
Uncla.

L 7863-66 EWT(1)/FS(v)-3 DD

ACC NR: AT5028036 SOURCE CODE: HU/2501/65/016/001/0043/0049

AUTHOR: Marek, Nandor (Szeged); Sipos, Maria (Szeged); Stur, Judit k. (Szeged); Szarvas, Janos (Szeged); Kramli, A. (Head, Szeged)

ORG: Institute of Medical Chemistry, Medical University, Szeged

37
B+1

TITLE: Continuous culturing of algae in artificial illumination

SOURCE: Academia scientiarum hungaricae. Acta biologica, v. 16, no. 1, 1965, 43-49

TOPIC TAGS: photosynthesis, algae, chlorella

ABSTRACT: A method for continuous cultivation of algae is described; this method can produce algae in sufficient quantities to inoculate larger culturing units. A diagram of the apparatus, which is based on the light-utilizing properties of the algae (Chlorella in these experiments) and on the theoretical principles of continuous cultivation, is given in the original article. Experiments showed that this system is self-regulatory in a certain light-intensity range: its productivity per unit volume of suspension remains constant at a rate of inflow of the medium between certain limits. The computed cell concentration values at different renewal periods must be taken as limits since the values obtained deviate approximately 10% from theoretical values. Orig. art. has: 1 figure and 12 formulas. [JS]

SUB CODE: LS/ SUBM DATE: 20Jul64/ OTH REF: 002/ ATD PRESS: 4147

Card 1/1

MAREK, N.; SIPOS, M.; STUR, J.K.; ZHARVAS, J.; KRAMLI, A.

Continuous culturing of algae in artificial illumination. Acta biol. acad. sci. Hung. 16 no.1:43-49 '65.

1. Institute of Medical Chemistry, Medical University, Szeged (Head: A. Kramli). Submitted July 20, 1964.

L 23896-66 SCTB DD

ACC NR: AT6011827 SOURCE CODE: HU/2501/66/016/004/0319/0325

AUTHOR: Marek, Nandor (Szeged); Sipos, Maria (Szeged); Stur, Judit K. (Szeged); Szarvas, Janos (Szeged); Kramli, Andras (Szeged)

ORG: Institute of Medical Chemistry, Medical University, Szeged/headed by A. Kramli/

TITLE: Studies on the redox potential in algal cultures

SOURCE: Academia scientiarum hungaricae. Acta biologica, v. 16, no.4, 1966, 319-325

TOPIC TAGS: algae, redox potential, oxygen tension, plant growth

ABSTRACT: Redox potential (RP) measurements were carried out in algal cultures to investigate the influence of the daily periodicity of light and darkness on changes in RP values and to establish the relationship between RP and growth curves. It was found that RP values are subject to regular daily changes, and are higher and lower in light and darkness, respectively. The difference between the maximum and minimum values varies greatly depending on whether the cultures or grown in inorganic media or in those containing organic hydrocarbons. It is assumed that this might be caused by differing oxygen tensions due to difference in photosynthetic oxygen production in the various media. The regular relationship between daily RP maximum values and growth rate

Card 1/2

Card 2/2 15K

STURC, F.

Protection of locking steel gates in hydraulic constructions. p. 253,
TECHNICKA PRACA (Statne nakladatelstvo technickej literatury)
Baratislava, Vol. 7, No. 6, June 1955

SOURCE: East European Accessions List (EEAL) Library of Congress,
Vol. 4, No. 12, December 1955

STURC, F.

Resolution of the 1st Scientific Mining Congress of the Slovak Academy of Sciences, p. 255, TECHNICKA PRACA (Statne nakladatelstvo technickej literatury) Baratislava, Vol. 7, No. 6, June 1955

SOURCE: East European Accessions List (EEAL) Library of Congress, Vol. 4, No. 12, December 1955

CZECH.

Protection of steel construction in hydraulic structures against corrosion. p. 157. VODNI HOSPODARSTVI. (Ustredni sprava vodniho hospodarstvi) Praha. Vol. no. 6, June 1956.

SOURCE: East European Accessions List, Vol. 5, no. 9, September 1956

STORC, Josef

CZECH

Utilization of wastes from dichromate production. Josef Sturc. *Chem. Průmysl* 4(29), 379–81(1954).—A discussion of various uses of wastes from alk. dichromate production in Czechoslovakia, including the so-called Ca waste, a residue contg. various oxides and salts after extg. the melts, and so-called conversion salt consisting mainly of NaCl and Na_2SO_4, a by-product of converting $Na_2Cr_2O_7$ into $K_2Cr_2O_7$.
L. A. Helwich

STURC, R., NAJMAN, M.

Yugoslavia (430)

Technology

The production of natural gas in Italy. p. 78.
NAFTA. Vol. 3, no. 3, Mar. 1952.

East European Accessions List. Library of Congress. Vol. 2, no. 3, March 1953. UNCLASSIFIED

SOLYOM, Janos; KOTRA, Zsuzsa; SALAMON, Akos; STURCZ, Jozsef; UJJ, Miklos

Studies on the relationship between the renin-angiotensin system and aldosterone excretion. Kiserl. orvostud. 15 no.4: 431-434 Ag '63.

1. Budapesti Orvostudomanyi Egyetem Elettani Intezete.

(ALDOSTERONE) (RENIN) (ANGIOTENSIN)
(ADRENAL CORTEX) (NEPHRECTOMY) (BLOOD)
(CHROMATOGRAPHY)

SOLYOM, Janos, KOTRA, Zsuzsa; SALAMON, Akos; STURCZ, Jozsef.

Study of the role of the renin-angiotensin system in the regulation of aldosterone production. Kiserl. orvostud. 16 no.1: 96-100 Ja'64.

1. Budapesti Orvostudomanyi Egyetem Elettani Intezete.

*

SPAT, Andras; SALIGA, Margit; STURCZ, Jozsef; SOLYOM, Janos

Effect of aldosterone on intestinal Na- and K-transport.
Kiserl. orvostud. 16 no.2:153-156 Ap'64

1. Budapesti Orvostudomanyi Egyetem Elettani Intezete.

*

SOLYOM,J.; KOTRA, Susanna; SALAMON,A.; STURCZ,J.

A study on the role of the renin-angiotensin system in the control of aldosterone secretion. Acta physiol. acad. sci. Hung. 24 no.3:293-298 '64.

1. Department of Physiology, Medical University, Budapest.

*

SPAT, A.; SALIGA, Margit; STURCZ, J.; SOLYOM, J.

Effect of aldosterone on the intestinal transport of sodium and potassium in rats. Acta physiol. acad. sci. Hung. 24 no.4:465-459 '64

1. Department of Physiology, Medical University, Budapest.

STUHZA, M., dr.; RADU, G., dr.

Maxillofacial trauma through sport accidents. Stomatologia (Bucur.) 12 no.5:439-446 '65.

1. Lucrare efectuata in Clinica de chirurgie buco-maxilo-faciala Institutul medico-farmaceutic, Bucuresti (seful clinicii: prof. Valerian Popescu).

L 13508-66

ACC NR: AP6007038 SOURCE CODE: HU/0018/65/017/003/0248/0252

AUTHOR: Spat, Andras--Shpet, A.; Sturcz, Jozsef--Shturts, Y.; Szigeti, Robert--Sigeti, P.

ORG: Medical University of Budapest, Institute of Physiology (Budapesti Orvostudomanyi Egyetem, Elettani Intezet)

TITLE: Angiotensin II activating factor in rat plasma

SOURCE: Kiserletes orvostudomany, v. 17, no. 3, 1965, 248-252

TOPIC TAGS: rat, biosynthesis, biologic metabolism, gland, hormone, endocrinology, blood plasma, drug effect, pharmacology

ABSTRACT: The effect of angiotensin II on the in vitro synthesis of steroids by the rat adrenals has been studied in Krebs-Ringer solution and in rat plasma. An effect of angiotensin on the increase of steroid synthesis could not be demonstrated in either of the incubation media. As compared with the Krebs-Ringer solution, rat plasma alone effected a significant increase in aldosterone production by the adrenals. The authors thank the CIBA and the Organs of the Pharmaceutical Factories for placing the Angiotensin II and Steroid preparations at their disposal. Orig.art.has: 3 figures.

SUB CODE: 06 / SUBM DATE: 29Jun65 / ORIG REF: 004 / OTH REF: 022 [JPRS]

Card 1/1 HW

L 28993-66

ACC NR: AT6019371 SOURCE CODE: HU/2505/65/027/003/0199/0203

AUTHOR: Spat, Andras; Sturcz, Jozsef; Szigeti, Robert

ORG: Institute of Physiology, Medical University of Budapest (Budapesti Orvostudomanyi Egyetem, Elettani Intezet)

TITLE: New observations on the function of the angiotensin-aldosterone system

SOURCE: Academia scientiarum hungaricae. Acta physiologica, v. 27, no. 3, 1965, 199-203

TOPIC TAGS: rat, hormone, blood plasma, adrenal gland, corticosteroid, hormone

ABSTRACT: The effect of angiotensin II on steroid synthesis by the rat adrenal cortex has been studied in Krebs-Ringer medium and in rat blood plasma. Attempts to demonstrate that angiotensin would have an increasing effect on the rate of steroid synthesis failed in both media. Moreover, a depression in aldosterone and corticosterone production was observed, especially in the plasma medium. No evidence was obtained for an activation of angiotensin II by blood plasma. A significantly higher rate of steroid synthesis was achieved in the plasma medium than in the Krebs-Ringer medium. The authors are indebted to Ciba Ltd., Basel, for supplies of angiotensin II and Organon Ltd. Oss., for the steroid preparations. Orig. art. has: 2 figures. [Orig. art. in Eng.] [JPRS]

SUB CODE: 06 / SUBM DATE: 14Jul64 / ORIG REF: 003 / OTH REF: 017

Card 1/1 BLG

L 29393-66

ACC NR: AT6019811 SOURCE CODE: HU/2505/65/028/002/0163/0170

AUTHOR: Sturcz, Jozsef; Kotra, Zsuzsanna; Purjesz, Istvan; Lakatos, Katalin, S.; Saliga, Margit K. 31 B+1

ORG: [Sturcz, Purjesz, Lakatos, Saliga] Institute of Physiology, Medical University of Budapest (Budapesti Orvostudomanyi Egyetem, Elettani Intezet); [Kotra] KOJAL, Budapest

TITLE: Effect of vagotomy on aldosterone 22 secretion in the dog

SOURCE: Academiae scientiarum hungaricae. Acta physiologica, v. 28, no. 2, 1965, 163-170

TOPIC TAGS: corticosteroid, dog, endocrinology

ABSTRACT: A study was carried out on the effect of vagotomy on the rate of aldosterone secretion in hypovolemic and hypervolemic dogs. The rate of secretion achieved in the hypovolemic state was significantly increased by vagotomy. In the hypervolemic state, vagal section had no effect on the aldosterone output of the adrenals. Under such experimental conditions, the inhibitory effect of hypervolemia on aldosterone secretion was overruled by the stimulating effect of blood loss. The authors thank Ciba, Basel and Organon, Oss, Netherlands for supplies of steroid preparations. Orig. art. has: 3 figures. [Orig. art. in Eng.] [JPRS]

SUB CODE: 06 / SUBM DATE: 18Dec64 / ORIG REF: 001 / OTH REF: 028

Card 1/1 C C

L 37820-66

ACC NR: AP6028457 SOURCE CODE: HU/0018/66/000/003/0258/0261

AUTHOR: Spat, Andras--Shpet, A.; Sturcz, Jozsef--Shturts, Y.

ORG: Institute of Physiology, Medical University of Budapest (Budapesti Orvostudomanyi Egyetem, Elettani Intezet)

TITLE: Effect of angiotensin II on aldosterone synthesis in rat adrenals

SOURCE: Kiserletes orvostudomany, no. 3, 1966, 258-261

TOPIC TAGS: rat, adrenal gland, drug effect, biologic secretion

ABSTRACT: The effect of angiotensin II on surviving adrenal tissue in the rat was studied. The steroid synthesis in the adrenals was influenced neither by the administration of 50 µg/100 g daily doses of angiotensin II for 3 days before decapitation, nor by a single dose of 50 µg/100 g of it injected 40 minutes before decapitation. In comparing these results with other data, it is considered doubtful that angiotensin II plays a role in the physiological aldosterone regulation of the rat. Orig. art. has: 2 figures. [JPRS: 36,599]

SUB CODE: 06 / SUBM DATE: 10Jun65 / ORIG REF: 002 / OTH REF: 011

Card 1/1

HUNGARY

SPAT, Andras, and STURCZ, Jozsef, Institute of Physiology at the Medical University (Orvostudomanyi Egyetem Elettani Intezete) in Budapest.

"The Effect of Angiotensin II on Adrenal Steroid Synthesis in the Rat"

Budapest, Acta Physiologica Academiae Scientiarum Hungaricae, Vol 29, No 3-4, 8 Jun 1966, pp 213-217.

Abstract: [English article; authors' English summary, modified] The effect of angiotensin II on steroid synthesis in the rat adrenal cortex was investigated. This drug (Hypertensin, CIBA) was practically ineffective on the rate of steroid production by incubated adrenal slices when administered in doses of 50 µg per 100 g daily for three days prior to decapitation, or in a single dose 50 µg per 100 g injected 40 minutes prior to the experiment. In view of these results and some other data, it appears unlikely that angiotensin plays a significant role in the physiological regulation of aldosterone secretion in the rat. 13 references, including 3 Hungarian, 1 German, and 9 Western. (Manuscript received 12 Jun 1965).

1/1

STURCZ, Jozsef, SPAT, Andras, and SZIGETI, Robert, Institute of Physiology, University Medical School (Orvostudomanyi Egyetem Elettani Intezete), Budapest.

"Effect of Local Aldosterone Concentration on Aldosterone Production in Incubated Adrenals"

Budapest, Acta Physiologica Academiae Scientiarum Hungaricae, Vol 30, No 2, 1966, pp 125-128

Endocrinology

HUNGARY

STURCZ, Jozsef, SPAT, Andras, SZIGETI, Robert; Medical University of Budapest, Institute of Physiology (Budapesti Orvostudomanyi Egyetem, Elettani Intezet).

"Effect of Changes in Local Aldosterone Concentration on Aldosterone Synthesis by Surviving Adrenals."

Budapest, Kiserletes Orvostudomany, Vol XVIII, No 4, Aug 66, pages 444-446.

Abstract: [Authors' Hungarian summary] Rat adrenal tissues were incubated in different amounts of Krebs-Ringer solution. According to the experimental results, aldosterone synthesis is independent of the hormone concentration and metabolic product concentration present in the incubation medium. The stimulating effect of plasma on steroid synthesis is presumably not caused by the aldosterone- or metabolic product-binding capacity of plasma proteins. 1 Hungarian, 16 Western references. [Manuscript received 23 Sep 65.]

1/1

CERNAY, J.; HUDAKOVA, G. Technicka spoluprace: STURDIKOVA, G.

Effect of a mixture of adrenalin and noradrenalin on the level of reduced glutathione (GSH) in the blood of healthy children. Bratisl. lek. listy 44 no.10:596-603 '64

1. Pediatricka katedra SUDL v Trencine (veduci: MUDr. A. Getlik) ; Centralne laboratorium OUNZ v Trencine (veduci: MUDr. Z.Cicvarek), a Ustav zdravotnickej statistiky v Bratislave (riaditel: prom. ekonom. S. Estok).

IZAKOVIC,V.; IZAKOVICOVA, A.; HNILICA, P.; CICVAREK. Z. Technicka spolupraca: STURDIKOVA. M.

Determination of the corticotropin activity of the hypophysis with metopyrapone (metopironetest). Bratisl. lek. listy 2 no.1:34-41 '64

1. Katedra vnutorneho lekarstva Slovenskeho ustavu pre doskolovanie lekarov v Trencine (veduci: doc. MUDr. D.Dieska) a Centralne biochemicke laboratorium OUNZ v Trencine (veduci: MUDr. Z.Cicvarek).

ČERNÁ, J.; CIOVARNÝ, Z.; technická spolupráce ŠTURDÍKOVÁ, M.

Relation of the level of glutathione reductase in the blood to weight and body surface in healthy children of school age. Česk. pediat. 19 no.11:979-982 N '64

1. Pediatrická katedra FÚVL v Trenčíne (vedúci MUDr. A. Getlik) a Ústav pre biochemické [illegible] Okresného ústavu národného zdravia v Trenčíne (vedúci MUDr. Z. Ciovarný).

RUMANIA/Microbiology - General Microbiology, Systematics, Morphology, Cytology. F

Abs Jour : Ref Zhur Biol., No 22, 1958, 99234

Author : Combiescu, D., Sturdza, N., Sefer, M., Radu, I., Dercea, A.

Inst : Rumanian Academy

Title : Serological Determination of Certain Types of Leptospirae of the Same Species Obtained from Various Foreign Laboratories

Orig Pub : Comun. Acad. RPR, 1956, 6, No 10, 1251-1256

Abstract : No abstract.

Card 1/1

STURDZA, N.

COMBIESCO, D.; STURDZA, N.

Types of leptospirae discovered in Roumania. J. Hyg. Epidem., Praha 1 no.2:205-212 1957.

1. Institut de Microbiologie, Parasitologie et Epidemiologie "Dr. Cantuzino".

(LEPTOSPIRA
serotypes discovered in Roumania (Fr))

RUMANIA / Microbiology. Microbes, Pathogenic to Man and Animals. Bacteria. Spyrochaeta. F

Abs Jour : Ref Zhur - Biologiya, No 5, 1959, No. 19610

Author : Combtescu, D.; Sturdza, N.; Sefer, M.; Oprolu, M.

Inst : Not given

Title : The Pathogenesis of Leptospira Strains, Isolated in RPR

Orig Pub : Studii si certetari inframicrobiol., microbiol. si parasitol., 1957, No 2, 239-248

Abstract : Leptospira icterohaemorrhagiae brings about in guinea pigs a disease with a short incubation, a characteristic course and a fatal outcome. Strains of L. canicola, L. pomona, I. mitis, and L. grippotyphosa

Card 1/2

RUMANIA / Microbiology. Microbes, Pathogenic to Man and Animals. Bacteria. Spyrochaeta. F

Abs Jour : Ref Zhur - Biologiya, No 5, 1959, No. 19610

cause a fever which in the bile-hemorrhagic form occasionally ends in death. Recently isolated strains are the most virulent. L. grippotyphosa, apparently, is the least pathogenic to the guinea pigs. The temperature curve of the pigs exhibits a multiphase character. The authors recommend the use of pigs for the isolation of pure leptospira cultures. -- Z. A. Yakubovich

Card 2/2

COMBIESCU, D.; STUDZA, N.; RADU, I.; SEFER, M.

Several cases of anicteric leptospirosis appearing in children after a swin; laboratory confirmation and epidemiological notes. Bul. stiint., sect. med. 9 no.1:171-178 1957.

(LEPTOSPIROSIS, in inf. & child
epidemic caused by swimming in pool contaminated by
nearby pig sty)

STURDZA, Nina; ELIAN, M.

Comparative study on different strains of L. biflexa as antigen for the complement fixation test in leptospirosis. Arch. Roum. path. exp. microbiol. 20 no.1:33-41 Mr '61.

1. From the "Dr. I. Cantacuzino" Institute - Division of Leptospiroses.

(LEPTOSPIROSIS immunol) (COMPLEMENT)

COMBIESCO, D.[deceased]; STURDZA, Nina; NICOLESCO, Marcela

Further research on the sources of infection in leptospiroses. L. bataviae and L. saxoebing isolated for the first time in Rumania. Arch. Roum. path. exp. microbiol. 22 no.1:5-12 Mr '63.

1. Travail de l'Institut "Dr. I. Cantacuzino" - Service des Leptospiroses.

(LEPTOSPIROSIS) (CATTLE DISEASES)
(HORSE DISEASES) (SHEEP DISEASES)
(DOG DISEASES) (SWINE DISEASES)

STURDZA, Nina; NICOLESCO, Marcela. Collaboration technique: CONSTANTINESCO, Georgeta.

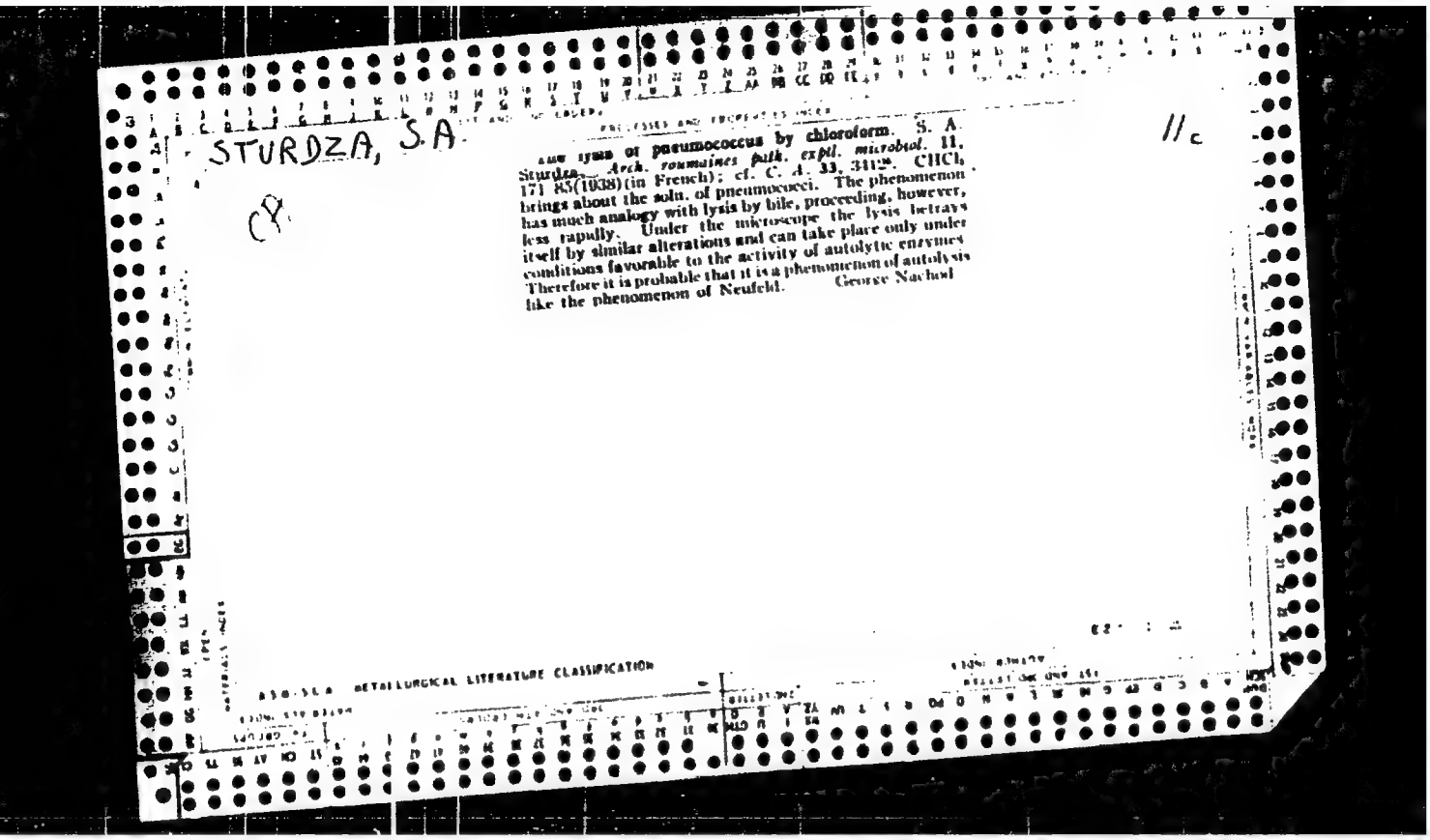
Uncommon frequency of L. pomona infection in Rattus norvegicus. Arch. roum. path. exp. microbiol. 23 no.3: 655-660 S'63

1. Travail de l'Institut "Dr. I. Cantacuzino"; Laboratoire de Leptospirose, Bucarest.

STURDZA, Nina; SAFIRESCO, Doina

On the stainability of Leptospira and Treponema. Arch. Roum. path. exp. microbiol. 23 no.4:927-938 D '64.

1. Travail de l'Institut "Dr. I. Cantacuzino", Laboratoire des Leptospires. Submitted June 26, 1964.



STURDZA, S.A.

CY.

11c

...lysis of pneumococcus by chloroform. S. A. Sturdza. *Arch. roumaines path. exptl. microbiol.* 11, 171-85(1938)(in French); cf. C. A. 33, 3115⁹. CHCl₃ brings about the soln. of pneumococci. The phenomenon has much analogy with lysis by bile, proceeding, however, less rapidly. Under the microscope the lysis betrays itself by similar alterations and can take place only under conditions favorable to the activity of autolytic enzymes. Therefore it is probable that it is a phenomenon of autolysis like the phenomenon of Neufeld. George Nachod

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

STURDZA, S.A.

Rumania /Chemical Technology. Chemical Products and Their Application
Water treatment. Sewage water. H-5

Abs Jour: Referat Zhur - Khimiya, No 1, 1958, 1664

Author : Sturdza S.A.

Title : Bacteriophage Fauna and Its Role in Spontaneous Bacterial Purification of Streams and Reservoirs

Orig Pub: Igiena, 1956, 5, No 3, 3-20

Abstract: A review.

Card 1/1

STURDZA, S.A.

Research on the method of distribution of bacterial of the Proteus group in the outdoor environment. I. Method of determination of the number of Proteus. Proteus content of polluted waters. Arch. Roum. path. exp. microbiol. 22 no.1:193-203 Mr '63.

(WATER POLLUTION) (PROTEUS)
(SWIMMING POOLS) (WATER SUPPLY)
(SEWAGE) (WATER MICROBIOLOGY)

STURDZA, S.A.

Research on the mode of distribution of Proteus group bacteria in the external environment. II. Hygienic qualities of a water and proteimetric data. Arch. roum. path. exp. microbiol. 22 no.4:1045-1062 S-D'63

STURDZA, S.A., dr (Bucuresti)

Bacterial self-purification of surface waters; present problems.
Natura Biologie 17 no.1:40-50 Ja-F '65.

STURDZA, S.A., dr.

Diversity, multiplicity and constancy of types in the Proteus group determined by the phenomenon of the line of demarcation. Microbiologia (Bucur) 10 no.2:111-118 Mr-Ap'65.

1. Lucrare efectuata in Clinica a II-a de dermatologie, Institutul medico-farmaceutic, Bucuresti (director: prof. S. Longhin).

STURE, A.Y.

The use of stencils and paint sprays. Det. khor. igr. no.1:54-55 '55. (MLRA 10:2)

1. Nachal'nik Otdela tekhnicheskogo kontrolya "Makaliniyeks." (Stencil work) (Toys)

YUKHIMENKO, A.C.; STURE, B.P.

Anchor bolt of plasticized wood. Ugol' 38 no.9:20-22
S '63. (MIRA 16:11)

88819

S/035/61/000/002/001/016
A001/A001

3.1400 (1030,1409)

Translation from: Referativnyy zhurnal, Astronomiya i Geodeziya, 1961, No. 2, p.13, # 2A153

AUTHORS: Shteyns, K., Sture, S. Ya.

TITLE: On One Case of Application of Matrices to Celestial Mechanics

PERIODICAL: Uch. zap. Latv. un-t, 1959, Vol. 28, pp. 141 - 143 (Latvian summary)

TEXT: The authors derive equations for conversion of Euler angles relative to the Earth's symmetry axis to Euler angles relative to the instantaneous rotation axis using matrices-krakowians. Oppolzer equations are obtained as a particular case:

$$\begin{Vmatrix} -\omega \sin\theta_1 \, d\psi_1/dt \\ \omega d\theta_1/dt \\ d\omega/dt \end{Vmatrix} = r(-\phi) \begin{Vmatrix} dp/dt \\ dq/dt, \\ 0 \end{Vmatrix}$$

Card 1/2

88819

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A001/A001

On One Case of Application of Matrices to Celestial Mechanics

where ω is angular velocity of Earth's rotation, ψ_1 is lunar-solar precession, θ_1 is nutation, φ is angle of intrinsic rotation in Oppolzer sense,

$$r(-\varphi) = \begin{Vmatrix} \cos\varphi & -\sin\varphi & 0 \\ \sin\varphi & \cos\varphi & 0 \\ 0 & 0 & 1 \end{Vmatrix} .$$

N. Yakhontova

Translator's note: This is the full translation of the original Russian abstract.

Card 2/2

SHTEYNS, K.A. [Steins, K.]; STUHE, S.Ya.

Diffusion of comets. Astron.zhur. 39 no.3:506-515 My-Je '62.
(MIRA 15:5)

1. Astronomicheskaya observatoriya Latviyskogo gosudarstvennogo universiteta.

(Comets)

STURGEN, Bogdan; RADULESCU, Marcel

Mathematical methods in regional zoogeography. Studii biol Cluj 12 no.1:7-24 '61.

1. Universitatea "Babes-Bolyai" Cluj, Catedrele de zoologie si analiza matematica. 2. Secretar de redactie, "Studii si cercetari de biologie" [Filiala Cluj, Academia Republicii Populare Romine](for Sturgen).

SOLOV'YEV, V.M., kand.tekhn.nauk, dotsent; STURIS, A.I., aspirant; AVDEYEV, N.Ye., inzh.; KAZHATKIN, G.D., inzh.

Investigating the power indices of the SK-3 self-propelled combine. Izv. TSKha no.5:162-167 '61. (MIRA 14:12)

1. Moskovskaya ordena Lenina sel'skokhozyaystvennaya akademiya im. K.A. Timiryazeva (for Solov'yev, Sturis). 2. TSentral'naya mashinoispytatel'naya stantsiya (for Avdeyev, Kazhatkin).
(Combines (Agricultural machinery))

STURIS, A.I., aspirant

Automatic control of the working process of the SK-3 combine. (MIRA 15:9)
Izv. TSKHA no.3:118-124 '62.
(Combines (Agricultural machinery))
(Automatic control)

STURIS, A.I., aspirant

Dynamic characteristics of units and the investigation of the stability of the system of automatic feeding control of a grain combine. Izv. TSKHA no.6:151-158 '62. (MIRA 16:6)

(Combines(Agricultural machinery))
(Automatic control)

STURIS, A.I.

The ZhNT-2,1 mounted harvester and puller. Biul. tekh.-ekon. inform. Gos. nauch.-issl. inst. nauch. i tekh. inform. 17 no.6: 71-73 '64. (MIRA 17:11)

STURIS, L. [redacted]

Using a SG-35/6 generator as a compensator. Muk.-elev.prom. 23 no.1:11 Ja '57. (MLRA 10:5)

1.Shcherbakul'skiy punkt Zagotzerno Omskoy oblasti.
(Electric generators) (Electric transformers)